

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A transmitting circuit apparatus comprising: a first digital modulator and a second digital modulator for ~~modulating~~performing sigma-delta modulation on an I signal and a Q signal which are multi-valued digital baseband modulation signals, into a digital I signal and a digital Q signal, respectively, having the number of bits smaller than that of said baseband modulation signals; ~~and a quadrature modulator for outputting a signal synthesized from the signals generated by modulating two carrier waves each having a phase perpendicular to each other by using said modulated I and Q signals, respectively; and,~~

a first E/O converter and a second E/O converters each for converting the output signal of each of said first and second digital modulators into an optical signal having a wavelength different from each other;

a first O/E converter and a second O/E converters each for converting the optical signal transferred from each of said first and second E/O converters into an electric signal; and

~~wherein the output signal of each of said O/E converters is input to said a quadrature modulator thereby to perform amplitude~~for performing quadrature modulation on each of said a carrier waves by the output signal of each of said first and second O/E converters, as an I signal and a Q signal, respectively.

2. (Currently Amended) A transmitting circuit apparatus of Claim 1, wherein each of said first and second digital modulators modulate said I and Q signals which are multi-valued and said digital baseband modulation~~Q signals into~~is a two-valued digital I and Q signals, respectively.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Previously Presented) A transmitting circuit apparatus of Claim 1, wherein said digital I and Q signals converted into optical signals each having a different wavelength are transferred through a common optical fiber.

13. (Cancelled)

14. (Currently Amended) A transmitting circuit apparatus of Claim 1, further comprising: ~~another~~ a third E/O converter for converting the output signal of a reference signal source into an optical signal having a wavelength different from those of the optical signals of said digital I and Q signals; and ~~an~~ a third O/E converter for converting the optical signal transferred from said third E/O converter into an electric signal; wherein said carrier waves are generated from the output signal of said third O/E converter.

15. (Currently Amended) A transmitting circuit apparatus of Claim ~~31~~ 31, wherein each of said sigma-delta modulators comprises an n-th-order integrator, a quantizer, and a feedback circuit, wherein a value input to said n-th-order integrator undergoes n-th-order integration and is then input to said quantizer thereby to be quantized into a digital value, wherein said quantized value serves as the output signal of said sigma-delta modulator, and at the same time, is input to said feedback circuit, and wherein the output signal of said feedback circuit is added to the input value of said sigma-delta modulator and the result is input to said n-th-order integrator.

16. (Currently Amended) A transmitting circuit apparatus of Claim 31, wherein each of said sigma-delta modulators comprises a plurality of lower-order sigma-delta modulators connected in multi-stage, wherein the output signal of each of said plurality of lower-order sigma-delta modulators is synthesized by connecting the output to a differentiator having a configuration expressed by a z transform

$$(1-z^{-1})^m$$

with the degree m up to the preceding stage.

17. (Cancelled)

18-22. (Cancelled)